

Claims

1. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus which comprises:

paper transfer means for sequentially transferring cut paper from a paper supply section along a predetermined paper transfer path, which cut paper is formed by connecting a plurality of paper pieces with each other along folding lines;

paper folding means for folding each paper on the paper transfer path;

contact-bonding film supply means for sequentially supplying an elongated contact-bonding film along a predetermined contact-bonding film supply path, which contact-bonding film includes a two-layered transparent film whose layers are releasably bonded to each other and adhesive layers each disposed on front and back surfaces of the contact-bonding film to provide adhesion when pressurized or when heated and pressurized;

contact-bonding film insertion means for inserting the contact-bonding film between any opposed paper pieces of the folded paper at an intersection of the paper transfer path downstream from the paper folding means and the contact-bonding film supply path;

paper contact-bonding means for releasably bonding both the paper pieces of the paper into which the contact-bonding film is inserted, via the contact-bonding film by pressurizing or by heating and pressurizing on the paper transfer path downstream from the contact-bonding film insertion means; and

paper cutting means for cutting the paper into which the contact-bonding film is inserted to a predetermined size on the paper transfer path upstream or downstream from the paper contact-bonding means,

the contact-bonding film insertion means having a structure which includes:

a vertically movable support plate disposed at the intersection to carry the supplied contact-bonding film on its upper surface;

support plate driving means capable of driving the support plate in the vertical direction for lowering the support plate and the contact-bonding film as one body and thereby pushing down a lower paper piece so as to forcedly open a space between the paper pieces when the paper folded such that the lower paper piece is slightly longer than the upper paper piece is transferred to the intersection and the upper paper piece of the paper is disposed upstream from the support plate and the lower paper piece is disposed below the support plate;

paper pushing means for pushing the paper having an open space between the paper pieces to the support plate carrying the contact-bonding film and thereby simultaneously inserting the support plate and the contact-bonding film between the paper pieces; and

support plate extracting means for extracting only the support plate from the paper into which the support plate and the contact-bonding film have been inserted and thereby leaving only the contact-bonding film inserted between the paper pieces,

characterized in that a periphery of the support plate on the side

to be inserted between the paper pieces has a slope which is downward-inclined toward the tip of the periphery to form substantially an acute angle at the tip.

2. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in claim 1, wherein the slope extends above the periphery of the support plate on the side to be inserted between the paper pieces.

3. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in claim 1 or 2, wherein the slope has a linear and/or curved cross section.

4. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in any one of claims 1 through 3, wherein the slope is formed by a separate component attached to the periphery of the support plate.

5. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in any one of claims 1 through 4, wherein the tip of the slope provided in the periphery is chamfered or processed to have an R shape.

6. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in any one of claims 1 through 5, wherein a contact portion for guiding a periphery of the contact-bonding film on the side to be inserted between the paper pieces is provided adjacent to the rear of the slope.

7. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in any one

of claims 1 through 6, wherein the periphery having the slope is curved upward with respect to the main body of the support plate.

8. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in claim 7, wherein the periphery having the slope is curved to have a linear and/or curved cross section.

9. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in any one of claims 1 through 8, wherein the periphery of the support plate in which the slope is formed is temporarily raised by support plate raising means before the lower paper piece of the paper transferred to the intersection reaches the support plate.

10. Contact-bonding film insertion means included in contact-bonded paper manufacturing apparatus as set forth in claim 9, wherein the support plate raising means raises the support plate using a push rod which is disposed below the support plate and driven by driving means.